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Iowa Department of Environmental Quality 1977-1978

Iowa Dept of Environmental Quality, Des Moines

1979

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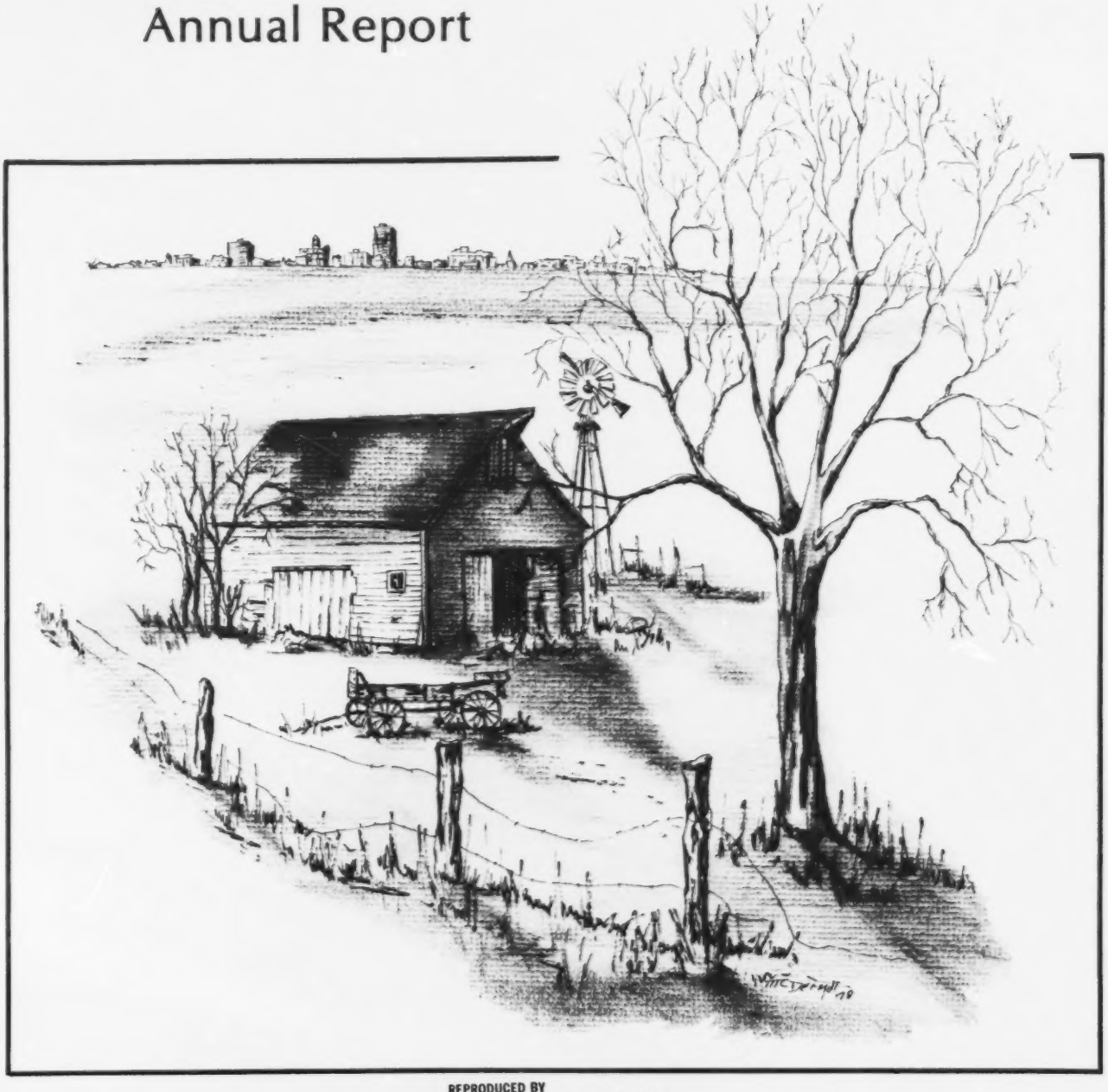
Iowa Department of Environmental Quality

1977 - 1978 Annual Report



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16. ABSTRACT

The 1977-1978 Annual Report discusses the Iowa Department of Environmental Quality's major activities and programs for the 1977-78 fiscal year. Along with highlighting Iowa's environmental efforts and achievements, the report also focuses on the state's environmental needs. The five major program areas covered in the report are: Air Quality, Solid Waste and Recycling, Hazardous Substances and Environmental Emergencies, Water Quality, and Environmental Training.

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To The People of Iowa:

Improving and maintaining the quality of Iowa's air, land and water is the major responsibility of the Department of Environmental Quality (DEQ). Our main function is to develop and implement programs which will provide all Iowans, present and future, with a quality environment. These programs help insure that the major sources of pollution in Iowa are meeting environmental standards. We encourage you to join us in this effort.

During the past state fiscal year (July 1, 1977 - June 30, 1978), we have made some major advances in improving and protecting Iowa's environment.

- Major steps have been taken to provide all Iowans with clean air. The specific areas of the state with air pollution problems have been identified. Also, a new statewide clean air planning program was launched.
- As of June 30, 1978, 90% of all major industries were in compliance with emission standards; and another 5% were on compliance schedules.
- Nineteen regional and local planning agencies have joined with DEQ to plan for future solid waste disposal and recycling efforts in Iowa.
- Iowa's Beverage Container Deposit Bill was signed into law.
- Sludge control rules were adopted to prevent the careless use of these wastes which come from our publicly owned wastewater treatment plants.
- DEQ was designated by the Governor to plan for hazardous substance control under the Resource Conservation and Recovery Act.
- DEQ allotted $23,661,940 in federal grant funds for construction of over 50 municipally owned wastewater treatment facilities. Additonally, $1,577,465 in state construction grants were distributed for municipal treatment facilities.
- Approximately 79% of Iowa's industries now provide proper wastewater treatment.
- DEQ was authorized by the U.S. Environmental Protection Agency (EPA) to enforce the Safe Drinking Water Act within Iowa.

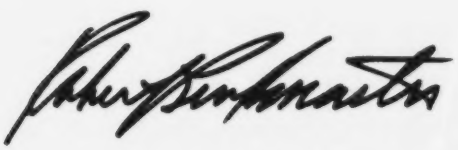
This report will discuss these and many other activities. We hope to give you a better understanding of what we have been doing and what we hope to accomplish in the future. Along with highlighting Iowa's environmental achievements, the report also focuses on the state's environmental needs.

Our report is organized into five major program areas:

- Air Quality
- Solid Wastes and Recycling
- Hazardous Substances and Environmental Emergencies
- Water Quality
- Environmental Training

We encourage all Iowans to participate in Iowa's environmental planning and programs. DEQ's commissions and boards meet monthly to consider policies which affect you. These meetings are open to the public. We encourage your attendance and participation.

Sincerely,



Robert R. Buckmaster, Chairperson
Executive Committee
Department of Environmental Quality

IOWA'S AIR QUALITY

IOWA'S AIR QUALITY

From July 1, 1977 through June 30, 1978, DEQ has taken major steps in its effort to provide all Iowans with clean air. The specific areas of the state with air pollution problems have been located. A new statewide clean air planning program was launched. An increased number of industries have complied with air quality standards. Criteria were established for implementing Iowa's first odor control rules.

MONITORING TELLS THE STORY

The quality of Iowa's air is determined through the use of a statewide monitoring system. The air above 90% of our state's land will not harm people or property. However, approximately 45% of our population live and work in the remaining 10% — the urban areas — where the air does not meet air quality standards.

Monitoring data has shown that thirteen of Iowa's metropolitan areas are violating air quality standards for one or more of the five major pollutants. These pollutants are particulates, sulfur dioxide, nitrogen oxides, ozone and carbon monoxide.

The Federal Clean Air Act Amendments for 1977 require that all areas of Iowa be classified according to their degree of air quality. The thirteen polluted areas are called "non-attainment areas". All other areas of the state are called "attainment areas" if they are meeting air quality standards or "unclassified areas" if they have not been monitored sufficiently to determine the actual condition of their air quality.

IOWA'S AIR QUALITY MONITORING SYSTEM

July 1, 1977 - June 30, 1978

MONITORING EQUIPMENT FOR MAJOR POLLUTANTS

Ⓢ Sulfur Dioxide ▲ Particulate Ⓝ Nitrogen Oxides

Ⓒ Carbon Monoxide O Ozone ● Total Hydrocarbons

Thirteen Iowa Urban Areas Violate Air Quality Standards

Primary* Air Quality Standards Violated

Particulates

Cedar Rapids
Council Bluffs
Davenport
Des Moines
Fort Dodge
Keokuk
Mason City
Sioux City

Ozone

Cedar Rapids
Council Bluffs
Davenport
Des Moines

Carbon Monoxide

Des Moines

Sulfur Dioxide

Dubuque

Secondary* Air Quality Standards Violated

Particulates

Cedar Rapids
Clinton
Council Bluffs
Davenport
Des Moines
Fort Dodge
Keokuk
Mason City
Marshalltown
Muscatine
Sioux City
Waterloo

Ozone

Cedar Rapids
Council Bluffs
Davenport
Des Moines

Carbon Monoxide

Des Moines

Sulfur Dioxide

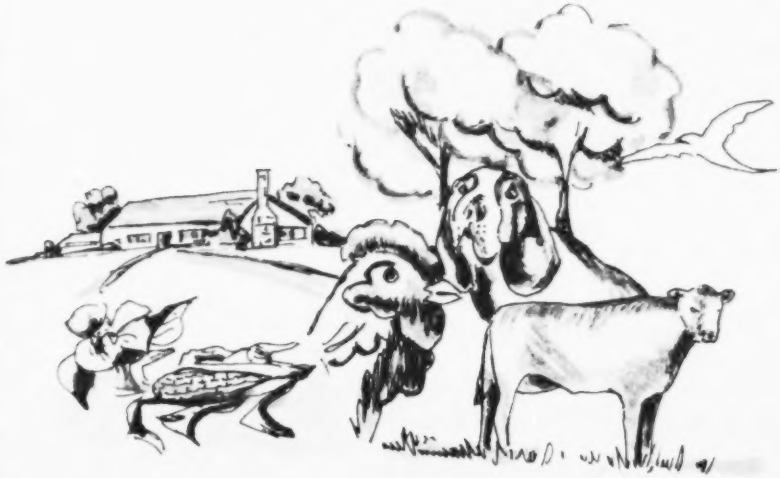
Dubuque

*** PRIMARY STANDARDS**

The primary air quality standards are set at a level to protect humans, who are less sensitive to air pollution than plants, animals or property. If an area is violating the primary standards, persons with respiratory or heart disorders may experience discomfort. Severe violations of these standards could result in serious threats to human health.

*** SECONDARY STANDARD**

The secondary air quality standards are set at a level which will protect plants, animals, and property. If an area is violating the secondary standard only, the air may be unsafe for plants and animals but still be safe for humans. Severe violations of these standards could seriously harm Iowa's vegetation, including corn and soybeans, and reduce crop yields.



A Continuing Process

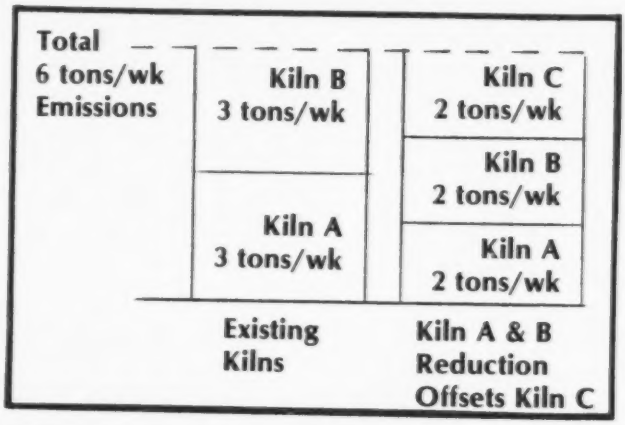
To obtain additional information about the quality of Iowa's air, a number of changes have occurred regarding the placement of monitors in our statewide system. To obtain more information about Dubuque's sulfur dioxide pollution problem, DEQ established a different monitoring site in that city and added some new monitoring instruments. Other changes have taken place in Davenport, Des Moines, Muscatine and Sioux City. Monitoring of some unclassified areas is being increased. For example, the air quality of Burlington and Creston is being checked on a full time basis for the first time.

As DEQ learns more about the areas being monitored, additional changes will be made. More studies of areas with pollution problems may be required to help find the cause or causes of pollution. Such information will be valuable in our continuing clean air planning.

PLANNING FOR CLEAN AIR

The 1977 Clean Air Act Amendments require states to develop a plan for cleaning up already polluted areas and protecting "clean" areas from future pollution. A joint effort by local officials and DEQ to develop Iowa's clean air plan currently is underway. Four metropolitan planning organizations have requested and received official designation to coordinate the clean air planning for their specific areas. They represent the counties of Linn, Polk, Pottawattamie and Scott. DEQ will help coordinate the planning efforts for all other areas of Iowa, in conjunction with the various local officials.

The Clean Air Act Amendments have established some mandatory guidelines to be used in all clean air planning. Any industry with major pollution-causing potential that wants to build in an alreaa, polluted area must follow an "emission offset policy". For example, if a cement plant wanted to build a new kiln which would add two tons of pollutants to the air per week, it could do so only after reducing by two tons the amount of pollutants emitted per week by existing kilns.



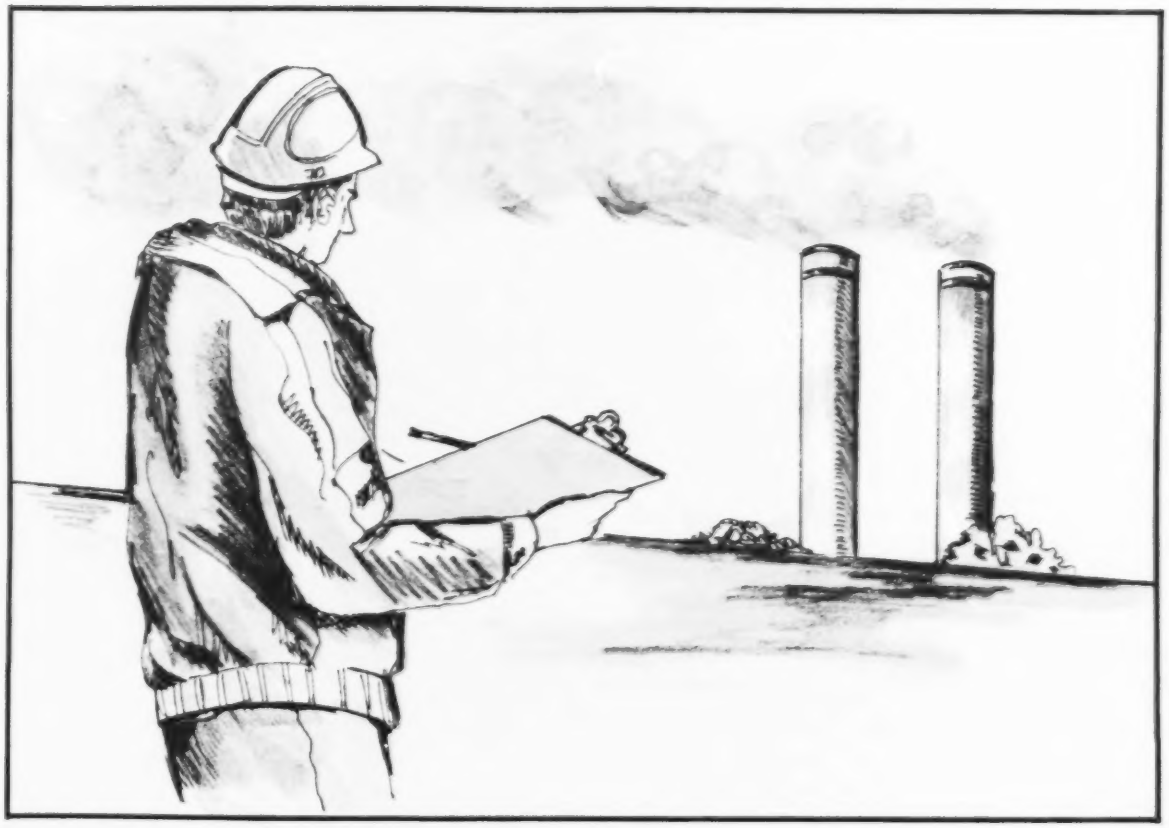
MAJOR AIR POLLUTANTS

Pollutant	Major Sources	Environmental Effects
PARTICULATES-suspended particles of smoke and dust.	Industry, motor vehicles, road dust, agriculture operations.	Damages paint, soils clothing, reduces visibility, carries harmful chemicals through the air.
OZONE-Smog	Hydrocarbons (unburned fuels from motor vehicles, open burning & industry) mixed with other chemicals form ozone.	Irritates eyes, nose and throat, makes breathing difficult, damages crops & materials.
CARBON MONOXIDE Toxic gas (colorless)	Car & truck exhaust (especially prominent in heavy traffic).	In small amounts causes dizziness, headache, fatigue.
SULFUR DIOXIDE Toxic gas	Industrial burning of high-sulfur coal & processing of sulfur products.	Irritates eyes, nose, throat, damages metals & plants.
NITROGEN DIOXIDE Toxic gas (brown)	Industry	Brown haze reduces visibility, irritates eyes & nose.

Many options that also would help reduce air pollution will be open to the discretion of local and state officials. These alternatives include setting limits on downtown traffic, improving mass transportation systems and inspecting motor vehicles for excessive pollution. Because the possible options could affect Iowans directly, local officials and individuals are encouraged to become involved in the state's clean air planning.

Iowans living in "attainment" areas do not face a clean-up job. Instead, they are charged with the task of preventing air pollution. The Clean Air Act Amendments include special guidelines to protect clean areas. These areas have been set aside for moderate pollution producing growth. Whenever a major industry wants to locate in a clean area, it will have to show that it will fit into the growth plan. If citizens want either more or less control over new pollution sources, their local officials can petition the state.

Iowans need to weigh the economic benefits of potentially polluting industries against the possible effects of their smoke, dust and chemicals on the air. Appropriate pollution controls can allow an industry to greatly reduce its pollution emissions. However, if pollution will be a problem, citizens may want to seek less polluting industries as a means of economic growth.



CONTROLLING MAJOR AIR POLLUTION SOURCES

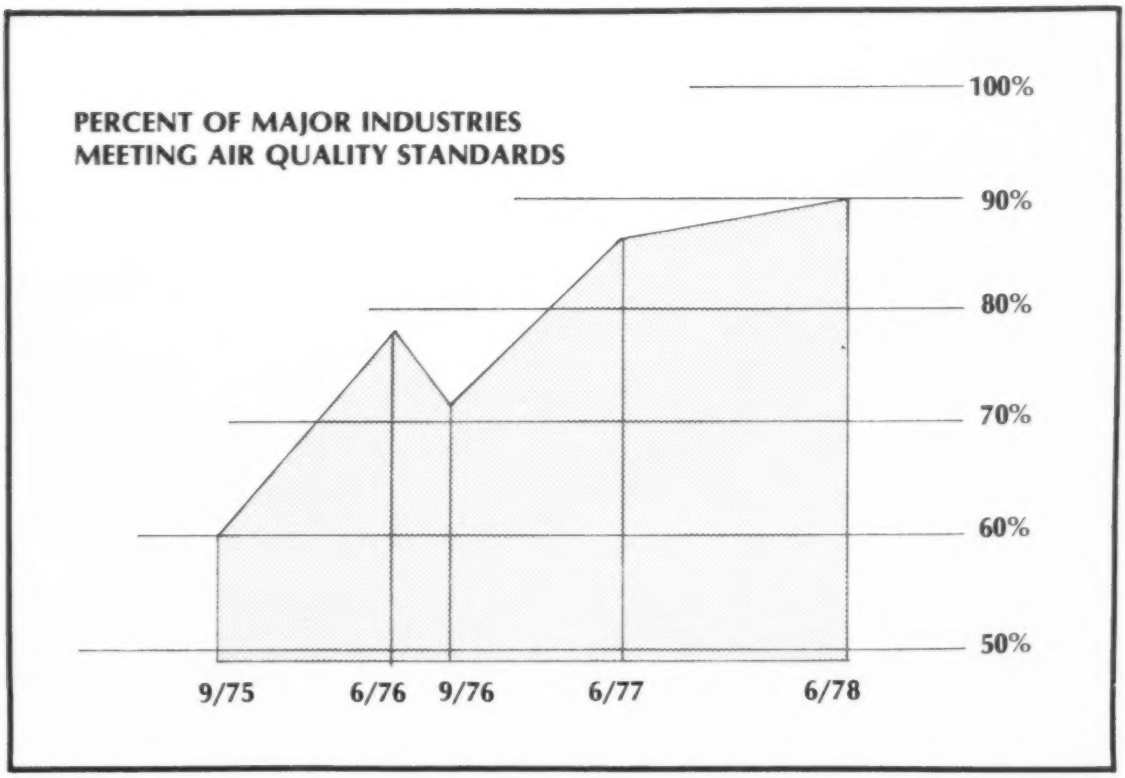
DEQ is continuing its efforts to control air pollution from existing sources. Industries are major potential polluters. However, the use of required air pollution control equipment has greatly reduced that potential threat. As of June 30, 1978, 90% of all major industries were in compliance with emission standards; and another 5% were on compliance schedules.

During the past five years, approximately 1500 pieces of pollution control equipment have been constructed for both old and new industrial sources. Equipment valued at $116 million has been certified for exemption from property tax. DEQ regularly inspects pollution control equipment to insure that it functions properly. Approximately 600 inspection visits to major industrial locations are made each year.

If a facility is found to be out of compliance with the air quality standards, DEQ notifies the industry's officials. The industry then is given the opportunity to install required pollution control equipment or repair faulty equipment. Whenever industrial air pollution has posed a threat to the health and welfare of Iowans, DEQ has been able to obtain industry cooperation and compliance with the clean air laws without the need of court action.

Motor vehicles are known to be a major cause of air pollution in Iowa. This is because of the sheer number of cars, trucks and recreational vehicles present in the state, and because legislation that would require more stringent pollution controls and maintenance on motor vehicles has not yet been approved.

Despite our present limited authority and resources in this area, DEQ is able to issue citations to owners of polluting vehicles. During the past year, 321 such violations were issued.



SOLID WASTE AND RECYCLING

SOLID WASTE AND RECYCLING

The safe disposal of solid waste is necessary for a healthy environment. Generally speaking, "solid waste" means any type of solid, semisolid or liquid waste that is not discharged into the air or water. Solid wastes include such items as household garbage, refuse and sludge from wastewater treatment plants. From July 1, 1977 - June 30, 1978, Iowa's solid waste programs have included three major areas: solid waste disposal, statewide solid waste management planning and recycling.

SOLID WASTE DISPOSAL

A major concern of DEQ has been to protect Iowans from the unsafe solid waste disposal practice of open dumping. Along with being eyesores and odor nuisances, open dumps breed an unhealthy environment. The practice of open dumping has been illegal in Iowa since July 1, 1975. An estimated 2,000 public and private open dumps have been closed and covered, leaving less than 200 to be properly closed.

Living Better With Landfills

The landfill is the most healthful and economical means for disposing of regular municipal solid waste. Landfills isolate wastes and keep them contained so they do not create health problems, cause offensive odors or contaminate our water supplies. When a landfill has reached its capacity, the land can be used for cropland, pasture or recreational areas.

The establishment of 121 permitted sanitary disposal projects made an approved landfill site available to each Iowan. In 83 Iowa counties, there is at least one landfill per county. Each of the 16 counties which have no sites are located adjacent to one or more counties that do have landfills.

Before a landfill is constructed, DEQ must approve the proposed site. Construction must follow approved engineering plans. Each landfill is inspected at least once a year by DEQ to determine if it is being operated properly. A total of 99 inspections were made during the past year. Failure to comply with operating rules can result in a fine or a suspension of the landfill's operating permit.

What To Do With Sludge

Sludge is the muddy deposit or sediment resulting from water cleaning processes. The proper use of sludge can benefit farmers by increasing crop yields. Sludge contains valuable nutrients and helps soil to hold moisture. However, sludge also contains many disease - causing organisms and can harm those who may come in direct contact with the substance.

In an effort to control these wastes from Iowa's publicly owned wastewater treatment plants, DEQ adopted municipal sludge disposal rules in May, 1978. The rules become effective July 1, 1979. They allow the continued use of sludge as a fertilizer provided that some safety precautions are taken. The precautions are designed to protect human health and the environment.

According to the rules, sludge can be disposed in three ways: low rate land application, high rate land application and sludge burial (i.e. landfills). Low rate application will be allowed without requiring a permit. However, persons using this method will be required to keep records of disposal locations and the quantities of sludge applied. High rate application and sludge burial will require special permits from DEQ. Municipalities will be prohibited from making their sludge available for household use, such as garden fertilizer.

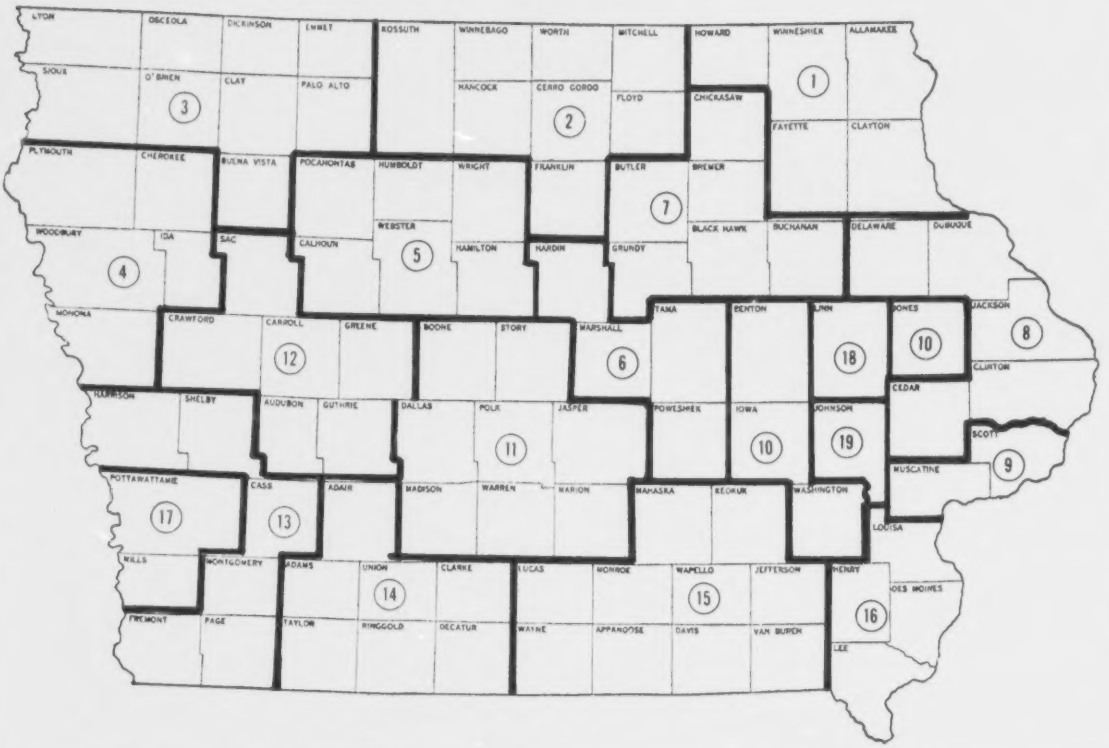
PLANNING FOR THE FUTURE

During the past year, DEQ and 19 regional and local planning agencies were designated by the Governor to plan for future solid waste disposal and recycling efforts in Iowa. This action was taken after extensive public participation programs and two public hearings. The twenty designees will participate directly in developing a state solid waste management plan, as required by the Federal Resource Conservation and Recovery Act (RCRA).

The 19 planning agencies are designated to plan for solid waste management within their respective districts. Possible responsibilities of these agencies include conducting surveys to determine the quantity and types of wastes, determining the best method of waste disposal and collection, and considering waste recycling alternatives.

DEQ has been designated to develop permitting and enforcement regulations for all types of solid waste in Iowa. The Department also will develop a statewide plan for hazardous waste management.

19 AGENCIES PLAN FUTURE SOLID WASTE DISPOSAL



1. Upper Explorerland Regional Planning Commission
2. North Iowa Area Council of Governments
3. Northwest Iowa Regional Council of Governments
4. Siouxland Interstate Metropolitan Planning Council
5. Midas Council of Governments
6. Region Six Planning Commission
7. Iowa Northland Regional Council of Governments
8. East Central Intergovernmental Association
9. Bi-State Metropolitan Planning Commission
10. East Central Iowa Association of Regional Planning Commissions
11. Central Iowa Regional Association of Local Governments
12. Region XII Council of Governments
13. Southwest Iowa Planning Council
14. Southern Iowa Council of Governments
15. Area XV Regional Planning Commission
16. Southeast Iowa Regional Planning Commission
17. Metropolitan Area Planning Agency
18. Linn County Regional Planning Commission
19. Johnson County Regional Planning Commission

IOWA PASSES BEVERAGE CONTAINER DEPOSIT LAW

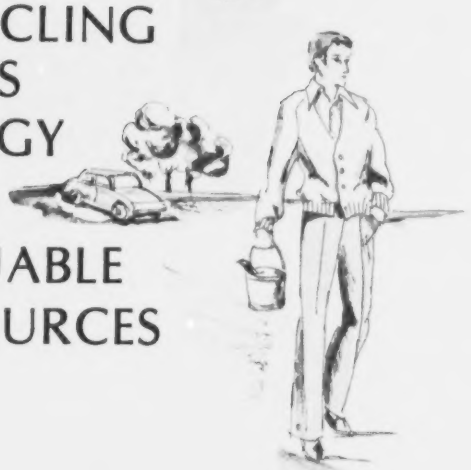
On May 14, 1978, the Governor signed a bill which requires a mandatory deposit on beverage containers sold in Iowa. DEQ provided technical support for the proposed legislation throughout its development and passage.

The purpose of the mandatory deposit is to encourage Iowans to return their empty beverage containers rather than discarding them. This action would increase recycling efforts, conserve raw materials, save energy and reduce roadside litter.

The new law requires consumers to pay a deposit of at least 5¢ on every beer, liquor and carbonated soft drink container sold in Iowa. The mandatory deposit on liquor bottles becomes effective May 1, 1979. Deposits on beer and carbonated soft drink containers will begin July 1, 1979.

Deposits may be retrieved at the place of purchase or at special redemption centers. Anyone will be allowed to establish a redemption center. Operators of these centers will receive at least one cent per empty container as a handling charge. The handling charge will be lowered to one-half cent after two years. DEQ is in the process of proposing rules for those redemption centers which request to be certified by the state. Certified centers can specify which beverage containers they will accept and refuse.

RECYCLING SAVES ENERGY AND VALUABLE RESOURCES



RECYCLING: A RESOURCEFUL ALTERNATIVE

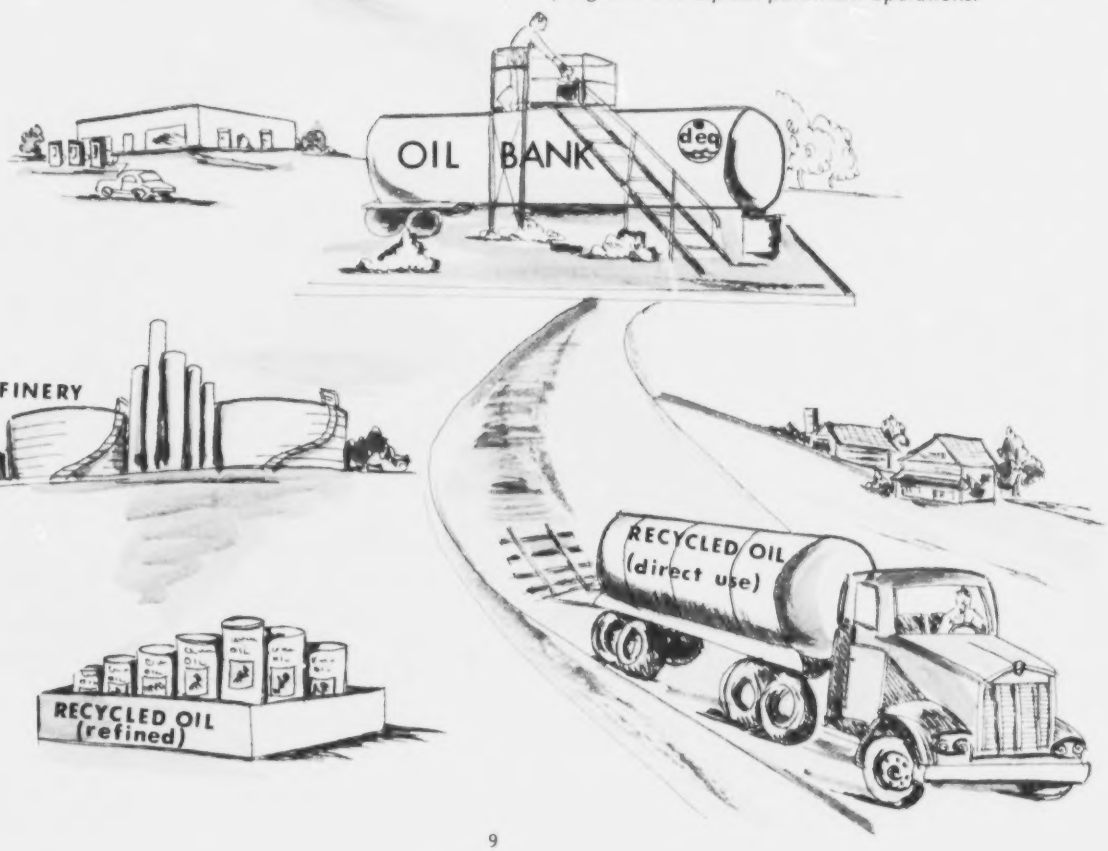
The ideal way to control waste is to prevent it. Recycling is a resourceful waste prevention measure. Rather than discarding our unwanted materials, we can find other uses for them, including the development of new products.

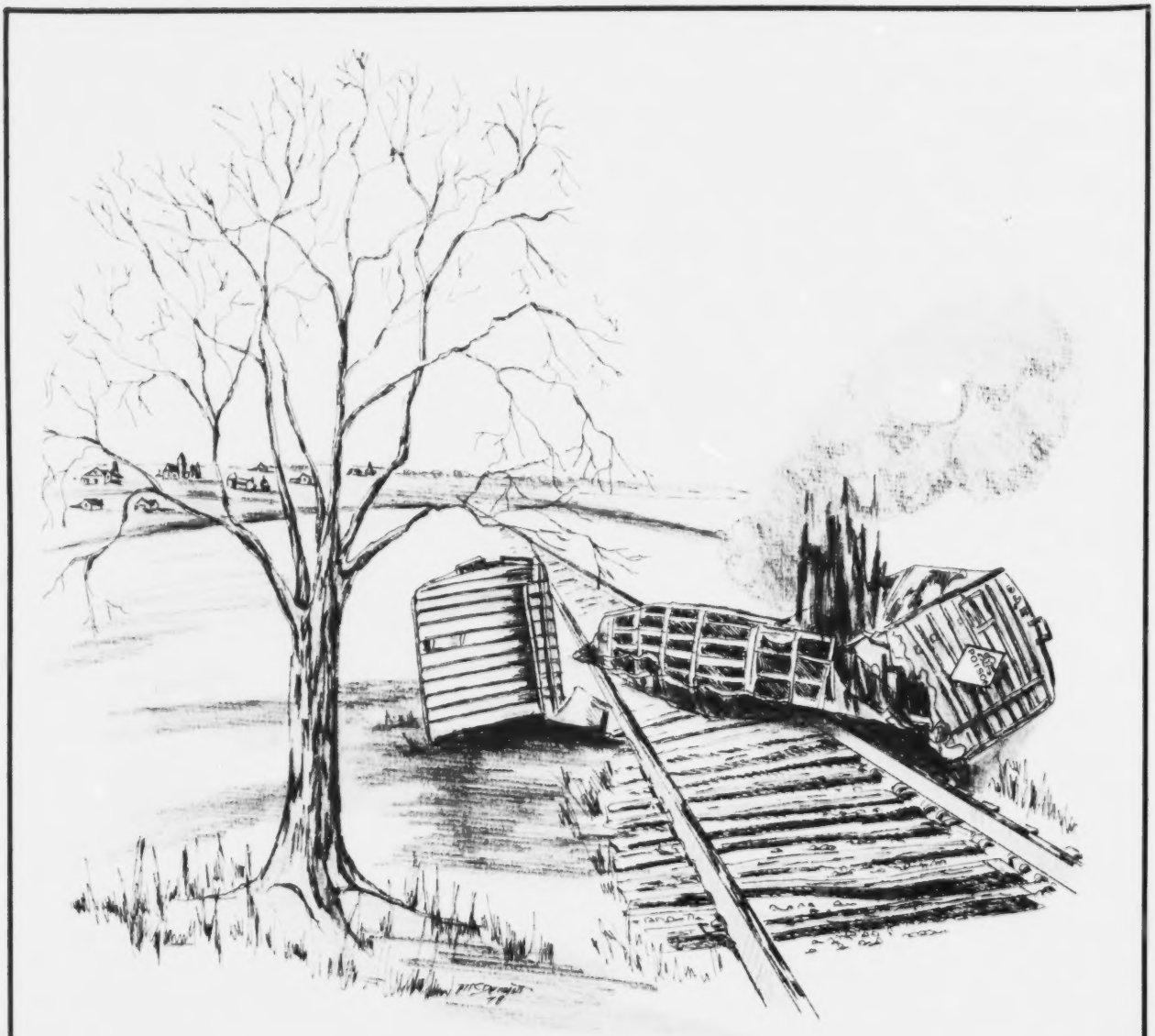
DEQ believes that recycling is a positive alternative to waste disposal. The Department has supported various recycling programs by providing information to the public and by helping to insure the environmental safety of recycling processes. DEQ also has provided technical assistance in the development of proposed legislation relating to recycling.

Industrial Waste Exchange

DEQ currently helps facilitate the recycling of industrial wastes. Industries wanting to dispose of certain special or hazardous wastes are required to obtain disposal instructions from DEQ. In some cases, the waste from one industry can be used by another. Through participation in the Iowa Industrial Waste Exchange, DEQ tries to help industries recycle their wastes whenever possible.

DEQ also has provided assistance in the development and implementation of other statewide recycling efforts including waste oil projects, pesticide can programs and asphalt pavement operations.





HAZARDS AND EMERGENCIES

HAZARDS AND EMERGENCIES

Although all pollutants can harm our environment, some are especially dangerous. They may pose serious threats to plants, animals and humans. Such pollutants may consist of matter which is flammable, explosive, toxic, corrosive, reactive or pathological (containing disease-causing microorganisms). Because of the potential dangers of these substances, they have been given the name "hazardous".

In protecting Iowa's environment, DEQ must pay special attention to hazardous substances and wastes. If these materials are handled, stored, transported or disposed improperly, environmental emergencies may result. An environmental emergency exists whenever pollution threatens human health or could cause severe damage to the environment over a short period of time.

DEQ maintains special programs to provide for disposing of hazardous wastes and responding to various environmental emergencies. However, DEQ lacks the authority to control and track the whereabouts of the large quantity of hazardous substances located in Iowa. Additional authority in this area could limit the probability of serious environmental emergencies occurring in the state.

FACILITATING HAZARDOUS WASTE DISPOSAL

DEQ has developed and implemented a Special Waste Authorization (SWA) program to help provide safe disposal for Iowa's hazardous wastes which are not recyclable. The program also is used for industrial sludge disposal. Although these sludges may not always contain hazardous substances, they still require special handling and so are called "special wastes".

The SWA program was developed because Iowa has no disposal sites designed to handle hazardous or special wastes. Although some of these wastes can be put into regular sanitary landfills, others require more care in disposal techniques. The SWA program enables DEQ to protect our state's regular landfills from dangerous disposal practices.

Before any special wastes can be accepted by a landfill, the operator must have a special waste authorization from DEQ. The authorization for acceptance of a given special waste is sought by the landfill operator or the solid waste disposal agency responsible for the landfill. In practice, due to the technical nature of the information necessary to process an SWA, DEQ also will be in close communication with the waste generator and hauler. The SWA gives specific instructions for proper disposal of the hazardous waste. DEQ receives about twenty requests for these authorizations each month.

To help insure the safety of Iowa's landfills, those which have accepted hazardous wastes are required to make semi-annual reports to DEQ. Some landfills are further required to establish and maintain a monitoring program because of their regular receipt of a specific special waste. All landfills are inspected by DEQ at least once per year.

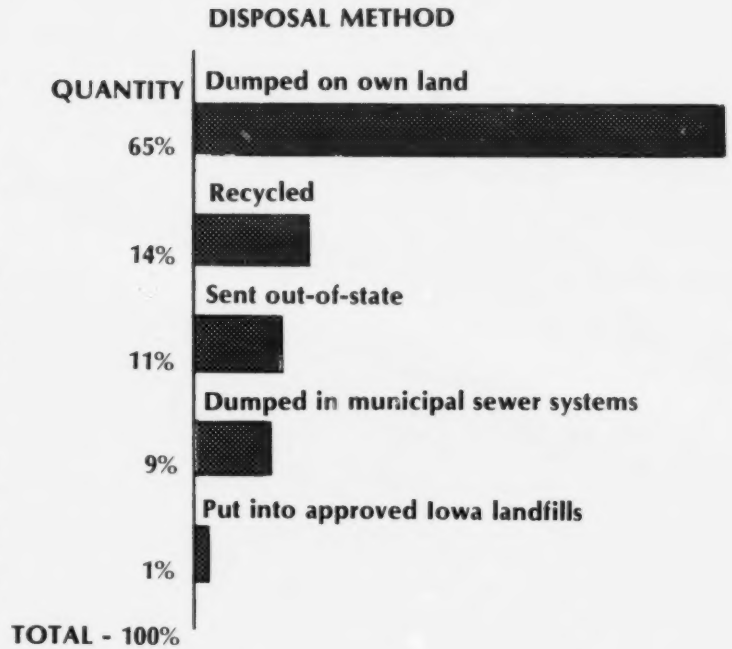
IOWA'S HAZARDOUS WASTE PROBLEMS

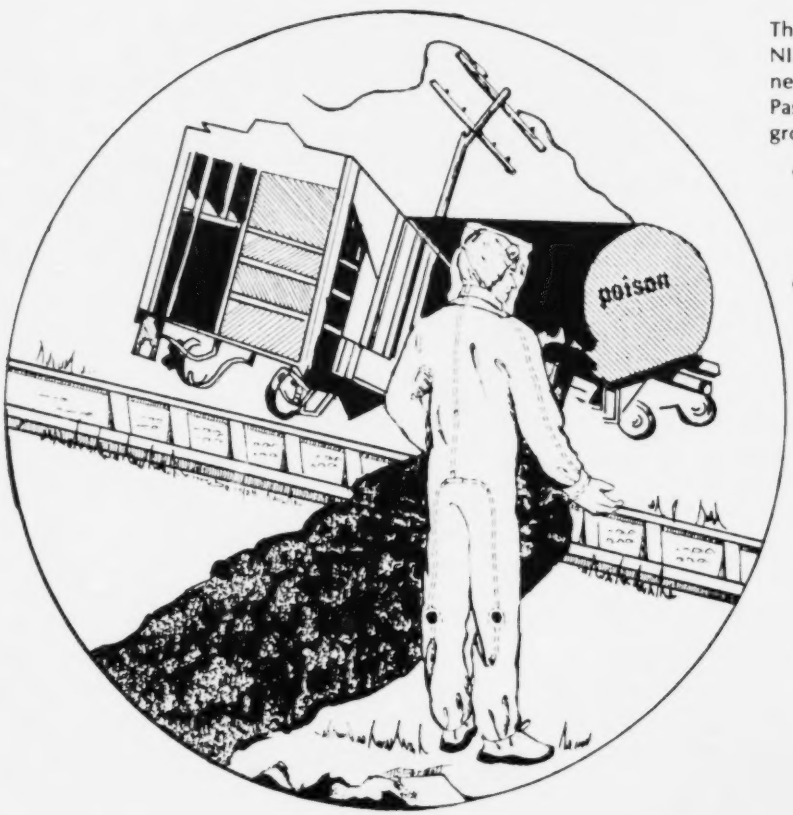
Some requests for special waste authorizations must be denied by DEQ if a proper disposal site cannot be found within Iowa. In that case, the hazardous waste will have to be transported to an out-of-state site.

Some industries faced with this problem may choose to use another alternative which is still legal in Iowa. That is, they may decide to dump their wastes on their own land. Although this alternate disposal practice may solve an immediate problem, the long-range effects could cause serious environmental problems.

Sizing Up The Problem

An independent study completed in Spring, 1977, by North Iowa Area Community College (NIACC) of Mason City shows that Iowa's industries generate approximately 600,000 tons and 35,000,000 gallons of hazardous wastes each year. That amounts to 1.5 pounds per person per day. According to the study, these wastes are disposed of as shown in graph.





The volumes and types of wastes identified in the NIACC study of industrial hazardous wastes show the need for tighter controls over all disposal operations. Past and present happenings in Iowa echo this growing concern:

- An Iowa industry has disposed of a highly toxic substance on its own land for over twenty years. Now DEQ is investigating the possible contamination of a major groundwater resource.
- In March, 1977, a neighboring state informed DEQ that 40,000 gallons of waste oil being transported into Iowa for use on the state's roads was suspected of containing the highly toxic chemical PCB (polychlorinated biphenyl). The waste oil was tested and the suspected contamination confirmed. Fortunately, this discovery was made before the substance had been sprayed into our environment. However, a major problem remained — what to do with the contaminated waste oil. Although some of the waste oil was sent out-of-state for disposal, 23,000 gallons still remain stored in Iowa because a suitable disposal site willing to accept the waste has not been found.

Future Activities

During the past year, DEQ was designated by the Governor to implement the Federal Resource Conservation and Recovery Act (RCRA). This action means that the Department will develop a statewide plan for management of hazardous wastes in Iowa. DEQ also will seek the appropriate authority required from the Iowa legislature to enforce the provisions of the Act. Obtaining this needed authority currently is DEQ's highest legislative priority.

Implementing RCRA calls for development of a management program for hazardous wastes. This program will include:

- Developing an inventory of hazardous wastes within Iowa.
- Establishing standards for disposal of hazardous wastes.
- Developing a system for keeping track of the whereabouts of hazardous wastes in transport from place of origin to place of disposal.
- Establishing a permit program for disposal of hazardous wastes.

RESPONDING TO ENVIRONMENTAL EMERGENCIES

Hazardous substances can be problems even before they become wastes. Traffic accidents, train derailments, fires and storms all can become environmental emergencies when hazardous substances are involved. DEQ is responsible for responding to environmental emergencies within Iowa.

During the past year, DEQ responded to an average of 15 reports of actual or potential environmental emergencies per month. The majority of these incidents were transportation related. The hazardous substances most often involved were petroleum products and agricultural chemicals.

DEQ gets involved in emergency response to determine what environmental damage may have occurred and help prevent further harm. DEQ serves as an advisor to local law enforcement officials if action is needed to protect people in or near the emergency area.

Iowa's Hazardous Substance Spill Bill, which was passed in 1977, gives DEQ the authority to require that spills of hazardous substances be cleaned up in an acceptable manner when public safety is threatened. An emergency phone line is open around the clock for reports of such incidents.

During the past year, DEQ adopted rules requiring that DEQ and local law enforcement agencies be notified of any potential or actual environmental emergencies. Any person who manufactures, stores, handles, transports or disposes of a hazardous substance must give proper notice to DEQ and the local police department or sheriff's office in the county where the hazardous condition occurs. Notification is required as soon as possible but not later than six hours after the discovery of such an incident.

PLANNING FOR RADIATION SAFETY

DEQ has been involved in two programs related to radiation safety. DEQ is a member of the Interagency Coordinating Council on Radiation Safety and also participated in "Exercise Sunshine".

The Radiation Safety Council was created by the legislature to coordinate efforts among the state agencies responsible for radiation safety in Iowa. The council is required to submit a radiation safety plan to the legislature each year. The plan submitted for 1977-1978 calls for registration and inspection of all x-ray equipment by the Department of Health. It also recommends the establishment of training standards for all operators of x-ray equipment.

DEQ's second radiation safety program was participation in "Exercise Sunshine II". The project was designed to test Iowa's emergency response program for radiation disasters. A simulated disaster at a nuclear power plant was staged. Although Iowa has only one nuclear power plant, there are five located in bordering states which could affect Iowa if a disaster occurred at any of them.

In another nuclear related effort, DEQ joined with Citizens United for Responsible Energy (CURE)to petition the Federal Nuclear Regulatory Commission to change one of their rules. The petition requested a rule change that would require nuclear power plants in and near Iowa to notify DEQ within a half hour of any incident involving the release of radioactive materials into the air or water.

Fortunately, Iowa has not had any serious radiation emergencies. However, the state must be prepared to handle a disaster if one were to occur. DEQ would work with the Office of Disaster Services, the University Hygienic Laboratory and the local health department in responding to possible radiation emergencies.

IOWA'S WATER QUALITY

IOWA'S WATER QUALITY

Our life-giving waters are among Iowa's most precious natural resources. Yet today, many of our rivers, streams and lakes are polluted by an increasing load of waste materials from farm, factory and home.

Iowa's current water protection program includes three major areas: wastewater treatment, clean water management planning and drinking water supply protection. Effective wastewater treatment helps control the amount of pollution that enters our streams and lakes from cities, industries and agricultural operations. Clean water management planning attempts to make our waters clean enough to swim and fish, and also seeks effective, economical ways of preventing future water pollution. DEQ's water supply effort helps assure Iowans that their drinking water is safe from harmful contaminants.

CONTROLLING WASTEWATER POLLUTION

Providing proper treatment of wastes from our cities, industries and agricultural operations is essential for improving and protecting the quality of Iowa's streams and lakes. From July 1, 1977 - June 30, 1978, the major emphasis of DEQ's wastewater treatment program centered on municipal and industrial pollution sources.

Setting Limits

The first step in controlling water pollution coming from municipal and industrial waste is to determine the waste load allocation for each pollution source. A waste load allocation is the amount of waste that a particular source is allowed to discharge into a stream or lake. Individualized allocations are necessary because waterways vary in size and in the amount of waste they can accommodate. DEQ has determined the waste load allocations and the resulting effluent limitations for the major facilities in the state and continues to update these evaluations as needed.

Municipal Achievements

Of Iowa's 955 municipalities, 322 currently have sewer systems and wastewater treatment plants which should be capable of meeting the effluent limitations set. Another 345 cities are in the process of upgrading their wastewater treatment systems or building new ones. A total of 288 cities are served only by individual septic tanks.

During the past year, the number of cities having proper wastewater treatment facilities increased by 11%. Since 1974, new treatment plants have been completed by 115 municipalities including six of the seven major cities located along the Mississippi River (Clinton, Davenport, Dubuque, Fort Madison, Keokuk and Muscatine). Burlington, the seventh city, currently is designing a new plant.

In 1977-1978, the number of cities having proper wastewater treatment facilities increased by 11%.

Operating permits are required for all functioning wastewater treatment plants. Each facility's permit indicates the effluent limitations which the plant must meet. The plants also must monitor their waste discharges and report the results to DEQ. On-site inspections of all major plants are done routinely by DEQ and the University Hygienic Laboratory (UHL).

Still In Progress

Iowa has 345 cities which are still developing or upgrading their wastewater treatment facilities. Because municipalities can not afford the full cost of treatment plants, DEQ staff assists them in getting financial aid through federal and state construction grants. Federal money will pay 75% of the costs and state funds cover 5%. DEQ has been successful in encouraging Iowa's cities to use all available funds.

In the past five years a total of over $205,000,000 in federal construction grants and $18,000,000 in state grants has been distributed. Last year DEQ allotted $23,661,940 in federal grant funds for the construction of over 50 municipally owned treatment facilities. Additionally, $1,577,465 in state construction grants were distributed for municipal treatment facilities.

Construction grants are awarded in three phases. "Step 1"grants pay for evaluation of present wastewater facilities and determination of present and future needs. "Step 2" grants cover the cost of designing new facilities; and "Step 3" grants pay for actual construction of wastewater treatment plants.

Before actual construction of a facility begins, the municipality is required to obtain a construction permit from DEQ. The permit grants approval of the builder's plant design. Construction permits must be obtained before "Step 3" of the construction grant process can be approved.

FEDERAL CONSTRUCTION GRANTS

July 1, 1977 - June 30, 1978

Project	County	Step	Grant
Walford	Benton	3	$ 88,420
Janesville	Bremer	3	666,000
Waverly	Bremer	3	2,270,400
Albert City	Buena Vista	2	15,150
Rockwell City	Calhoun	2	21,450
Lanesboro	Carroll	3	154,200
Washta	Cherokee	3	75,750
Guttenberg	Clayton	3	812,550
Elwood Comm. S.D.	Clinton	2	16,650
Woodward	Dallas	2	11,250
Garden Grove	Decatur	1	2,700
Dundee	Delaware	2	14,170
Burlington	Des Moines	2	543,520
Cascade	Dubuque	3	465,820
West Union	Fayette	1	20,620
Jefferson	Greene	3	1,330,570
Grundy Center	Grundy	3	90,150
Webster City	Hamilton	3	2,520,000
Crystal Lake	Hancock	3	189,220
Steamboat Rock	Hardin	2	17,020
Whitten	Hardin	3	131,920
Victor	Iowa	1	7,500
Maquoketa	Jackson	2	45,970
Libertyville	Jefferson	2	14,470
Lone Rock	Kossuth	1	4,500
Cedar Rapids	Linn	3	8,825,250
Fairfax	Linn	1	10,720
Robins	Linn	2	16,500
Lucas	Lucas	1	3,000
Williamson	Lucas	1	3,000
Pella	Marion	2	324,000
Emerson	Mills	2	16,800
Glenwood	Mills	2	155,100
Atalissa	Muscatine	1	5,250
Sibley	Osceola	2	94,870
Des Moines	Polk	1	25,120
Crescent	Pottawattamie	1	3,750
Elk Horn	Shelby	2	11,400
Panama	Shelby	1	4,500
Boyden	Sioux	2	18,750
Kelley	Story	3	133,420
State Center	Story	1	14,020
Lincoln	Tama	1	5,470
Lorimor	Union	2	23,320
Indianola	Warren	3	4,132,720
Riverside	Washington	2	22,350
Seymour	Wayne	2	26,170
Rake	Winnebago	3	133,200
Hornick	Woodbury	2	9,670
Sioux City	Woodbury	1	113,620
		Total	$23,661,940

Unsewered Communities

Iowa has 496 communities with a population of less than 500 people. Of these, 288 communities do not have a sewer system, but rely on individual septic tanks to provide wastewater treatment. Many of these communities also do not have a public water supply system and obtain their drinking water from wells. Because of the contamination potential to wells from septic tanks, such communities may realize the need to build their own wastewater or water supply systems. However, these communities also may discover that such construction is impractical without first obtaining financial assistance.

For example, a community of 200 may require a treatment plant and sewer line system each of which cost between $150,000 - $250,000. Only the treatment plant could be subsidized through federal construction grants. The sewer system (costing approximately $1000 per person in the town) must be completely funded by the community. Often this funding is derived through Farmers Home Administration loans.

Four percent of Iowa's allotment of construction grant funds will be used to develop alternative and unconventional systems for small communities. In addition, two percent of the grant funds are set aside for projects utilizing innovative processes and technologies which may save energy. DEQ will encourage the development of new technologies for handling the sewage treatment of small communities. This will enable Iowa to use all available federal funds in eliminating some of the problems of unsewered communities.

Industrial Achievements

Approximately 79% of Iowa's industries now provide proper wastewater treatment. During the past five years, 20 of 34 major industrial dischargers completed treatment facilities. In these five years, $100.6 million in pollution control equipment has been certified by DEQ for property tax relief (representing 184 industries).

Industries can meet their effluent limitations either by building their own wastewater treatment facilities or by using the nearest municipal treatment plant. If an industry chooses to build its own facility, it is required to obtain a construction permit from DEQ. Industries using municipal wastewater treatment plants must prevent their discharges from overloading the cities' sewage systems. Under new rules taking effect in July 1978, DEQ can require industries to take action if they are causing a municipal wastewater treatment plant to violate its effluent limits. Such industries either must cut their waste discharges or build their own treatment facilities.

Achieving Compliance

DEQ determines whether industrial and municipal wastewater treatment plants are meeting their effluent limitations by reviewing monthly or quarterly reports submitted by plant operators. Also, DEQ makes periodic inspections of treatment facilities.

DEQ attempts to obtain voluntary compliance from facilities which exceed their permit conditions. If this procedure does not result in significant improvement of the situation, legal action is taken. From July 1, 1977 to June 30, 1978, fifty-four executive orders were issued requiring wastewater treatment facilities to come into compliance. When DEQ's legal perogatives are exhausted, the case may be referred to the Attorney General for prosecution. Twenty-one such referrals were made last year. Three Iowa industries were fined a total of $112,500 for water pollution violations.

Regulating Animal Waste

Iowa's animal waste rules require all animal feeding operations to meet minimum waste control standards. Also, certain new and existing operations must obtain construction and operation permits. The number of animals, type of waste storage, and distance of the feedlot operation from the nearest stream are factors determining whether a permit is required.

During the past year DEQ began developing design standards and construction schedules to help facilitate the permitting process. These standards and schedules are to be completed during the next year.

A booklet which condenses and clarifies the existing animal waste control rules can be obtained from DEQ, local County Extension Service offices, or Soil Conservation Service offices.

DEQ met with representatives of the Iowa Cattlemen's Association and Iowa Pork Producers in April, 1978, to share concerns, ideas and suggestions about environmental programs and rules relating to agricultural operations. The participants in the meeting agreed to consider taking additional steps to build good rapport between the two associations and DEQ.

PLANNING FOR CLEAN WATER:

208 In Iowa

Proper planning can prevent future water pollution problems. That is the main idea behind the continuing planning process now underway in Iowa, known informally as "208".

The 208 water quality management planning program was established through Section 208 of the Federal Water Pollution Control Act. The program is designed to clean up the nation's waters by 1983. It calls for developing a comprehensive plan for maintaining and enhancing water quality in Iowa' streams and lakes.

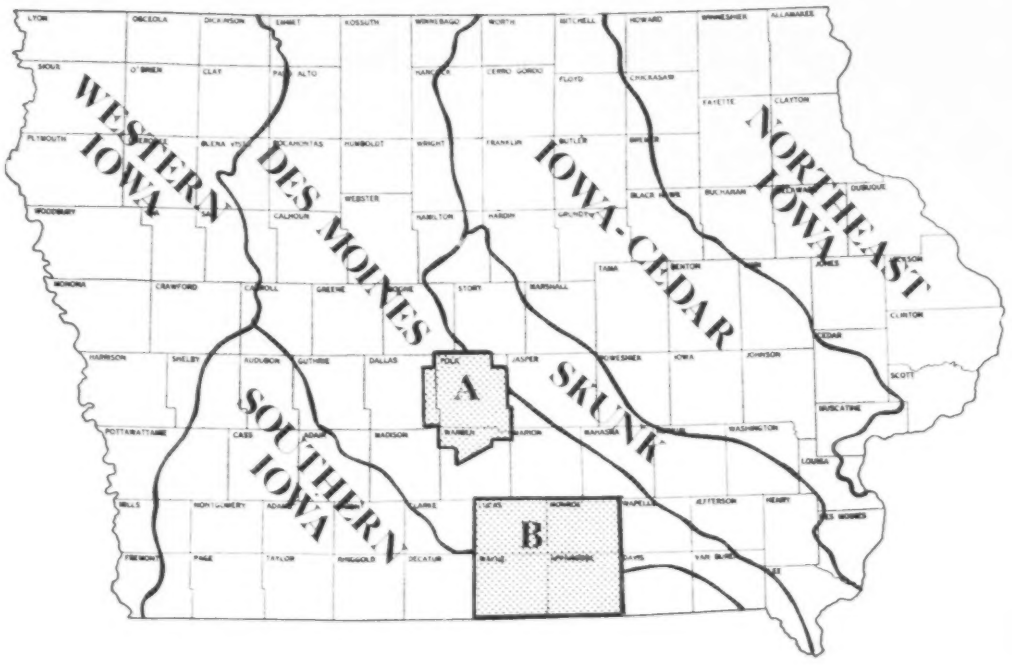
Iowa's 208 program began in 1976. The Governor designated DEQ to coordinate the water quality planning effort for the state. Two local planning agencies were designated to develop plans for the Des Moines and Lake Rathbun areas. The Des Moines 208 plan was certified by DEQ with certain exceptions in June, 1977. The local planning agency must show that an adequate management structure exists to implement the plan. Rathbun's 208 plan was submitted to DEQ in May, 1978. All final 208 plans must be approved by the Iowa Water Quality Commission.

DEQ has encouraged public participation in Iowa's 208 process through a system of advisory committees. Six Basin Advisory Committees (BACs) are located throughout the state. The Statewide Policy Advisory Committee (SPAC) consists of representatives from each BAC plus nine at-large members.

The Department of Soil Conservation (DSC) has been working with the seven advisory committees and DEQ to develop the nonpoint source portion of 208 planning. Nonpoint source pollution cannot be attributed to a specific source, such as discharge pipe. The major cause of nonpoint source pollution is stormwater runoff from agricultural and other land areas.

The first major project of the 208 program was completed during the 1976-77 reporting period. Iowa's Water Quality Standards were revised. As part of this revision, the state's streams and lakes were classified according to their use (such as swimming, fishing, water supply). Seventeen Iowa streams and lakes were designated to receive special protection from pollution because of their "high quality" classification. The BACs were instrumental in classifying the streams and lakes in their areas.

During the past year, municipal sludge disposal rules were adopted. The seven 208 advisory committees helped propose these rules which control the disposal of sludge from Iowa's publicly owned wastewater treatment plants.



Each river basin is served by a Basin Advisory Committee (BAC). Each BAC has 20 members representing urban and rural interests of the area.

The Statewide Policy Advisory Committee (SPAC) links the BACs to the Iowa Water Quality Commission. The SPAC is composed of representatives from the BACs plus nine at large members.

Des Moines (A) and Rathbun (B) areas are local programs which report directly to the Commission.

Other 208 projects still in progress include:

- **A comprehensive assessment of the water quality in Iowa's streams and lakes.** Emphasis will be placed on determining the impact that nonpoint source pollution has on the quality of Iowa's surface waters.
- **A determination of priorities for cleaning up and controlling nonpoint source pollution.** The first step in developing a project priority list—establishing priority criteria—has been completed. Using that criteria, a list of "high value - high impact" streams and lakes has been compiled. That is, the waters which will receive top priority in implementing nonpoint source pollution prevention measures will be those which: a) are most affected by nonpoint source pollution now; and b) would have the greatest value to the people of Iowa once they were cleaned up.
- **Refinement of the above project priority list by the Department of Soil Conservation through selecting the top priority watersheds.**
- **Surveying farmers in the watersheds to determine which areas would have 75% voluntary compliance with best management practices for preventing nonpoint source pollution.** Best management practices might include such procedures as minimum tillage and terracing.

Areas meeting all the above priority criteria—top priority water, in top priority watersheds, with 75% of farmers voluntarily participating, will qualify for available cost-share funding for the control of nonpoint source pollution.

KEEPING OUR DRINKING WATER SAFE

A statewide inventory completed in 1976 revealed that Iowa has approximately 3000 community and non-community water supplies. Of these, about 825 are classified as municipal water supplies. These supplies serve approximately 72% of Iowa's people and are inspected annually by DEQ.

The remainder of Iowans and the traveling public are served by approximately 2200 smaller water supplies. Staffing and funding limitations prevent DEQ from inspecting these smaller supplies on a regular basis. However, some are inspected by local health departments, other state agencies or by DEQ upon request.

Our major regulating functions for public water supplies are to assure compliance with construction permit requirements and to insure safe drinking water. The permit program requires any construction, alteration or extension of a public water supply to meet DEQ's design standards. During the past five years, DEQ has issued approximately 2183 permits to construct or modify public water supply systems. A total of 753 permits were issued during the 1977-1978 reporting period. The permit program also includes approving new drinking water supply sites.

Safe drinking water is maintained through annual on-site sanitary surveys, water quality monitoring, enforcement of regulations and operator certification. The University Hygienic Laboratory assists DEQ in testing for health-related contaminants. Substances which can contaminate our drinking water include chemical, biological and radiological materials. Some secondary, non-health related, characteristics also are evaluated. They include such constituents as color. sodium, sulfate and iron.

IMPLEMENTING THE SAFE DRINKING WATER ACT

In September, 1977, DEQ was authorized by the U.S. Environmental Protection Agency (EPA) to enforce the Safe Drinking Water Act in Iowa. The Department currently is developing a program for implementing this law.

Under the Act, a public notification system is being implemented. This system will require local water supply operators to inform the public when violations of the drinking water standards occur. Operators also will be required to assist citizens in taking any needed action to protect their health while the water supply is violating the standards.

A new data processing system, Model State Information System (MSIS), is being designed to handle the information generated from the new water supply program. The system will help process the environmental data which operators send to DEQ. The operators' reports enable DEQ to determine which supplies are in compliance and which are not meeting standards. The new data system also will track sampling schedules, the status of variances and exemptions from meeting standards, and enforcement procedures.

ENVIRONMENTAL TRAINING

Successful operation of wastewater and water supply treatment plants requires the knowledge and skills of competent operators. To assure Iowans that the people who manage their treatment facilities meet the standards of competency, all operators must be certified.

The Operator Certification Board oversees Iowa's certification program. The program, which is administered by DEQ, offers training courses through Kirkwood Community College, Iowa State University and the University of Iowa. To receive certification, all operator candidates are required to pass a written or oral examination.

During the past year, 202 new wastewater and 242 new water supply certificates were issued. These additions, combined with annual renewals of existing certificates, brought the number of certified operators to 1,523 in wastewater and 1,713 in water supply.

Operators are expected to upgrade their knowledge as necessary. A new 78 module training package, which was completed in 1977, will allow operators to participate in various **mini-courses** that focus on their specific needs or interests. This continuing education program will be offered through the Department of Public Instruction's area community college system.

In April, 1978, the Operator Certification Board began a process of updating the certification rules. In brief, the major proposed changes involve three general areas:

Continuing Education. Changes in state licensing law require continuing education for all licensed persons. To insure that operators keep abreast of current technology and developments in their profession, the Certification Board has proposed that, as a condition for renewal of a certificate, the operator in active, on-site charge of a large plant must earn two continuing education units (CEU's) per certificate during each two-year period. All other operators who are certified would be required to earn one continuing education unit every two years. One CEU is defined as ten contact hours of participation in an organized education experience under responsible sponsorship, capable direction, and qualified instruction.

Education and Training Substitution. These changes may affect an operator's eligibility for certification examinations. The board has proposed rules that would incorporate the present guidelines for determining the substitution value of education and training for general operating experience when determining eligibility for certification examinations. Two hundred twenty-five contact hours of directly related instruction would be equivalent to one year of general operating experience or equivalent to one year of post high school education.

Discipline of Certified Operators. The new state licensing law also requires some changes in disciplinary actions for operators. Proposed rules specify the grounds for disciplinary action, the allowable sanctions and procedures.

DEQ solicited comments from operators on the proposals. The proposed rules then were taken to public hearing on June 28, 1978. Before the rules become effective they must be approved by the Water Quality Commission and DEQ Executive Committee.

DEQ ORGANIZATION

DEQ was created by an act of the 64th General Assembly and was officially organized January 1, 1973. We were established to consolidate environmental programs which existed in two state agencies and to provide a coordinated approach to environmental management.

During the 1977-1978 Iowa Fiscal Year, DEQ has functioned with the following organizational structure:

Commissions and Boards

The four commissions, Air Quality, Chemical Technology, Solid Waste Disposal and Water Quality, are responsible for determining policies as well as developing and conducting programs to implement these policies. The commissions also adopt rules and standards, and initiate enforcement actions taken by the Department. The Operator Certification Board certifies wastewater and water supply treatment plant operators.

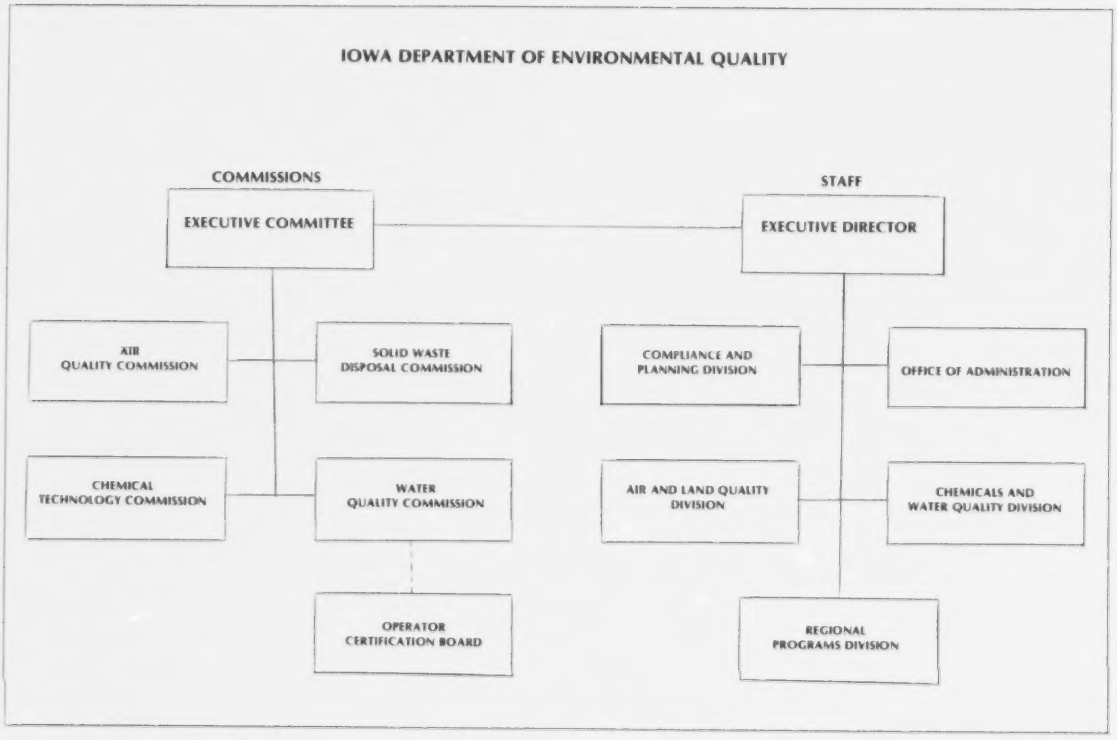
Executive Committee

The Executive Committee consists of the four commission chairpersons and six non-voting state agency directors who serve as advisory members. The committee maintains final approval over rules, policies, legislative proposals, contracts and budgets.

Staff

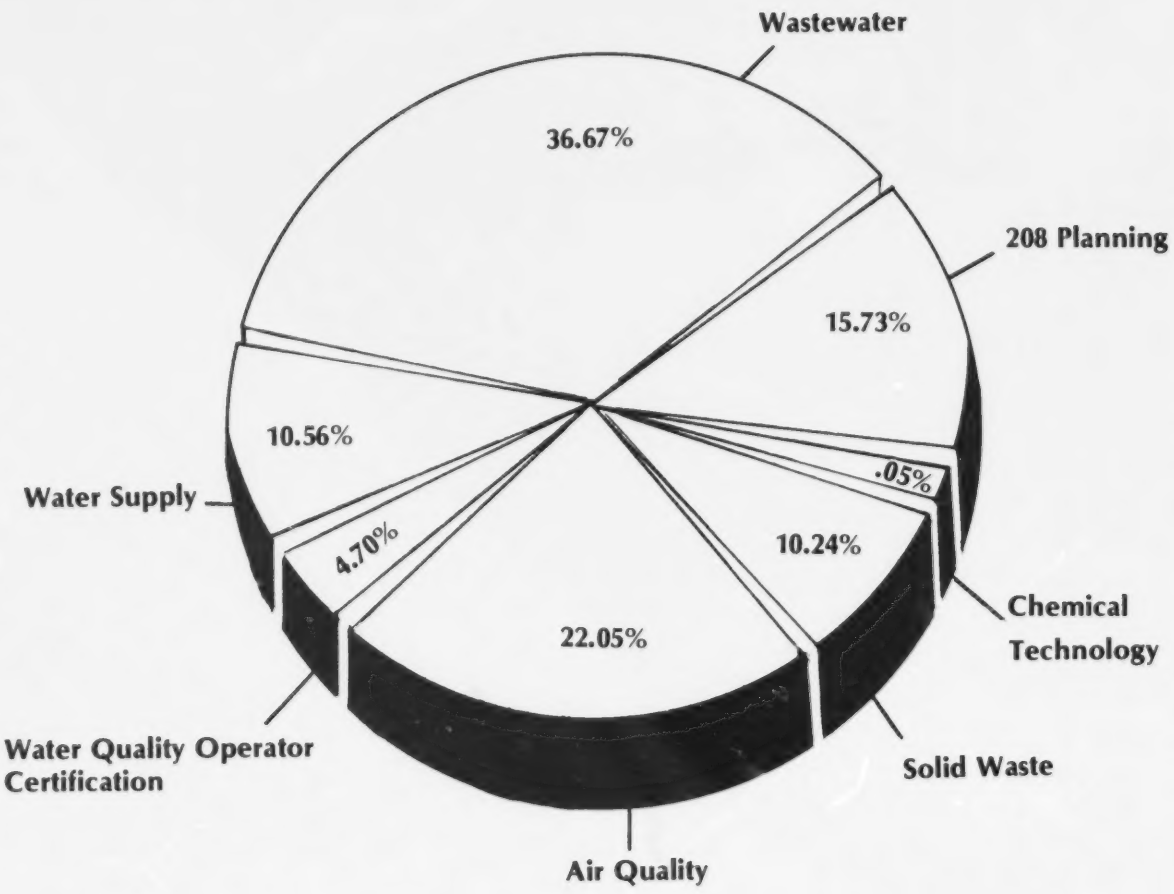
The programs that are developed by the commissions are carried out through the DEQ staff of scientists, engineers, and other professionals. Our staff is headed by the Executive Director who is appointed by the Governor.

We are based in a central office in Des Moines and in six regional offices throughout the state. As of June 30, 1978, DEQ has 183 permanent full time positions - an increase of nineteen during the fiscal year.



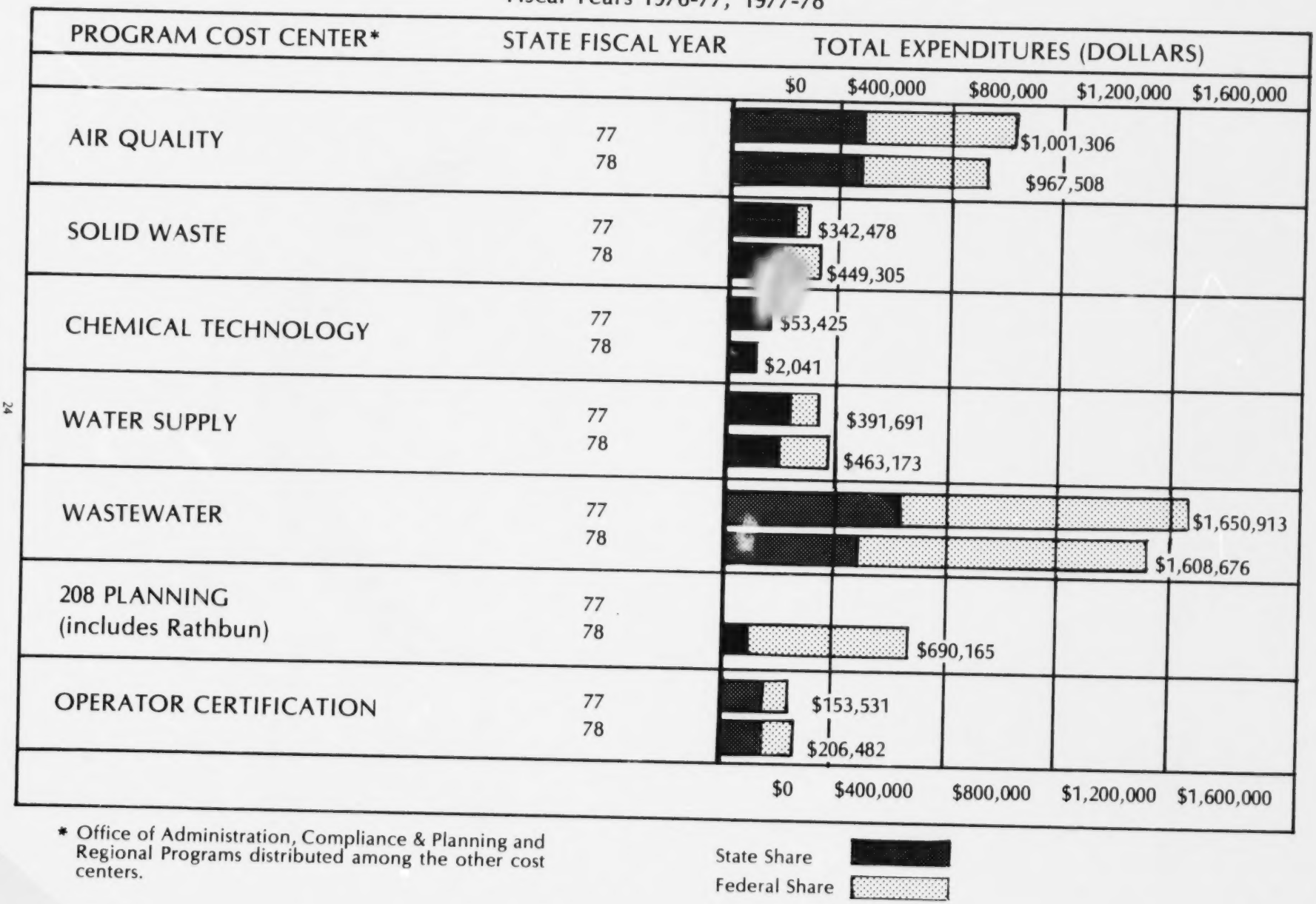
FINANCIAL SUMMARY

DEQ expenditures for 1977-1978 were $4,387,351. The funds were allocated to the programs described on the preceeding pages. Each program may have been further divided into cost centers based on sub-programs or funding sources.



DEQ EXPENDITURES

Fiscal Years 1976-77, 1977-78

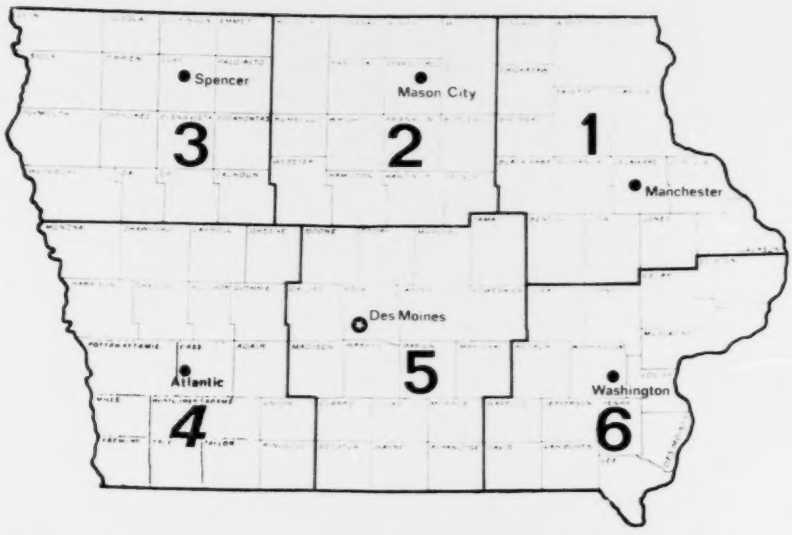


* Office of Administration, Compliance & Planning and Regional Programs distributed among the other cost centers.

State Share

Federal Share

REGIONAL OFFICES



REGION	LOCATION	ADDRESS	P.O. BOX	TELEPHONE NO.
1	MANCHESTER-52057	209 NORTH FRANKLIN ST		319/927-2640
2	MASON CITY-50401	509 SOUTH PRESIDENT	1443	515/424-4073
3	SPENCER-51301	401 GRAND AVE., SUITE 24	270	712/262-4177
4	ATLANTIC-50022	316 WALNUT		712/243-1934
5	DES MOINES-50309	317 E. 5th ST., SUITE 21	6160	515/281-3622
6	WASHINGTON-52353	117 NORTH 2nd Ave.	27	319/653-2135

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